

R E M A R K S

Claim 1 was again rejected under 35 USC 103 as being obvious in view of the combination of USP 5,409,069 ("Olwert"), USP 5,719,468 ("Takanishi"), and USP 5,883,468 ("Hobbs"), and claim 5 was again rejected under 35 USC 103 as being obvious in view of the combination of Olwert, Takanishi, Hobbs, and USP 5,808,399 ("Yoneyama"). These rejections, however, are again respectfully traversed.

As pointed out in the Amendment filed September 10, 2003, halogen lamps for the headlights of cars and trucks have been well known for decades. Due to the different mains voltages of cars (typically 12 volts) and trucks (typically 24 volts), the halogen lamps for the headlights of these types of vehicles differ too. Halogen lamps used in cars comprise single coiled filaments whereas conventional halogen lamps that have been used in trucks comprise double coiled filaments. This is because the filament wires of the halogen lamps used in trucks needed to be longer for providing a higher ohmic resistance to obtain the typical value of electrical power consumption for the headlight lamps of trucks of about 50-60 watts. The use of double coiled filaments, however, has many disadvantages, including non-uniform illumination, which are described on pages 1-2 of the specification of the present application.

The applicant is not aware of any successful attempts until the present invention to provide a halogen lamp for a truck which comprises only a single coiled filament.

A halogen lamp for use in the headlight of a truck must meet many requirements. In particular, the filament must be matched to the main voltage of nominal 24 volts as well as to the requested power consumption and to the optical properties of the reflector.

In the halogen lamp according to the present invention as recited in claim 1, the length of the single coiled filament is in a range from 4.0-6.5 mm to match the optical requirements of the reflector, the wire diameter is between 0.11 and 0.14 mm, the outside diameter is between 1.4 and 2.0 mm, and the single coil is provided with at least 20 turns so as to match the single coiled filament to the main voltage of at least 20 volts (nominal 24 volts) and to provide sufficient shock resistance. These ranges are critical to achieve the halogen lamp of the claimed present invention which has a power consumption of between 50 watts and 100 watts.

For example, if the wire diameter is decreased or the outside diameter is increased, then the power consumption will decrease due to the increased ohmic resistance of the filament. In addition, if the wire diameter is increased or the outside diameter is decreased, then the power consumption will increase.

Still further, the number of turns should be high to provide homogenous illumination. However, the number of turns also contributes to the ohmic resistance of the filament and therefore to power consumption. Since all of the turns must be distributed along the length of the filament, a change in the number of turns would lead to a change of the operation temperature of the filament, which has a strong influence on the ohmic resistance of the filament.

The halogen lamp of the present invention provides an optimum combination of these technical parameters, and it is respectfully submitted that the halogen lamp of the claimed present invention produces significant advantageous and unexpected results.

Namely, the filament of the halogen lamp of the claimed present invention has a comparatively high "density of turns", or number of turns per unit length of the filament. Specifically, as recited in claim 1, more than 20 turns (preferably 23-26 turns) are distributed over a very small filament length (5.2 or 5.6 mm). Therefore, the turns of the filament are closely arranged and have only a small clearance between adjacent turns. Despite this small clearance, however, no short-circuit of the turns of the filament occurs.

In addition, it is noted that the filament of the halogen lamp according to the claimed present invention has a longer

lifetime than does the conventionally used double-coiled filament.

It is respectfully submitted that the above described combination of critical structural features and unexpected advantageous effects of the halogen lamp of the claimed present invention are not at all disclosed, taught or suggested by the references cited by the Examiner.

The Examiner asserts that Olwert discloses a single coiled filament. However, it is respectfully pointed out that the portion of Olwert referred to by the Examiner on page 2 of the Final Office Action actually describes "a coiled-coil tungsten filament". And it is again pointed out that the term "coiled-coil" means "double coiled". Thus, Olwert does not disclose a single coiled filament as asserted by the Examiner.

In addition, it is again respectfully pointed out that the halogen lamp disclosed in Olwert is not even suitable for use in motor vehicle headlights.

Still further, it is again respectfully pointed out that the values of 1.9 mils (0.0475 mm) and 3 mils (0.075 mm) for the diameter of the filament wire disclosed in Olwert are much lower than the range of 0.11-0.14 mm recited in claim 1.

And yet still further, it is noted that the Examiner again recognizes that Olwert does not disclose a coil length of 4.0-6.5 mm or an outside diameter of a coil of 1.4-2.0 mm. For this

reason the Examiner has again cited Takanishi for the disclosure of a coil length of 4.0-6.5 mm and the Examiner has again cited Hobbs for the disclosure of an outside diameter of a single coil of 1.4-2.0 mm.

On pages 3-4 of the Final Office Action, the Examiner again asserts that it would have been obvious to combine the teachings of Olwert, Takanishi, and Hobbs. In particular, the Examiner asserts that:

"It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the filament of Olwert with the specified dimensions of Takanishi in combination with Hobbs in order to enable the uniformity of the filament temperature to improve without decreasing the lamp efficiency and further increase the lamp life without compromise [sic] the lamp cost, light output or distribution."

It is respectfully submitted, however, that the Examiner's reasoning is merely based on "hindsight analysis".

As pointed out by the CAFC in the case of In re Dembiczak, 50 USPQ2d 1614 at 1617 (Fed. Cir. 1999):

Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("the Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to

select the references and combine them"); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed. Cir. 1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination").

The above quote from *In re Dembiczak* makes it abundantly clear that a proper rejection based on a combination of references under 35 USC 103 must include a showing of an objective teaching or motivation to combine the prior art references.

As described herein above, until the present invention was achieved, all headlights for trucks had utilized double coiled filaments due to the higher mains voltage of trucks as compared to cars. In addition, as pointed out hereinabove, the halogen lamp disclosed in Olwert is not even suitable for use in motor vehicle headlights and this reference is directed to an entirely different field of lighting than either Takanishi or Hobbs.

Accordingly, it is respectfully submitted that a person of ordinary skill in the art would have had no motivation to combine the teachings of Olwert with Takanishi and Hobbs in the manner suggested by the Examiner. And it is respectfully submitted that the Examiner has failed to point to any objective teaching in any

of these reference which suggests that they may be combined to achieve the structure of the claimed present invention.

In addition, it is again respectfully submitted that even if the teachings of Olwert were combinable with Takanishi and Hobbs in the manner suggested by the Examiner, the structure of the claimed present invention would still not be achieved since Olwert, in fact, does not even disclose a single coiled filament (but rather discloses a "coiled-coil tungsten filament" or "double coiled" filament).

In view of the foregoing, it is again respectfully submitted that Olwert, Takanishi and Hobbs are not properly combinable references, and that even if they were combinable they would still not achieve or render obvious the combination of features of the present invention as recited in claim 1.

Accordingly, it is respectfully submitted that claim 1 and claim 5 depending therefrom patentably distinguish over Olwert, Takanishi, and Hobbs (and Yoneyama) under 35 USC 103.

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In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

Application No. 10/049,477
Response to Final Office Action

Customer No. 01933

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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